

# Customer Shopping Behavior Analysis

Optimizing Retail Strategy with Data-Driven Insights





# Project Overview

1

## Data Scope

Analyzed 3,900+ purchases across diverse product categories.

2

## Key Insights

Identified spending patterns, customer segments, and product preferences.

3

## Strategic Impact

Supports data-driven marketing, improved customer relations, and revenue optimization.

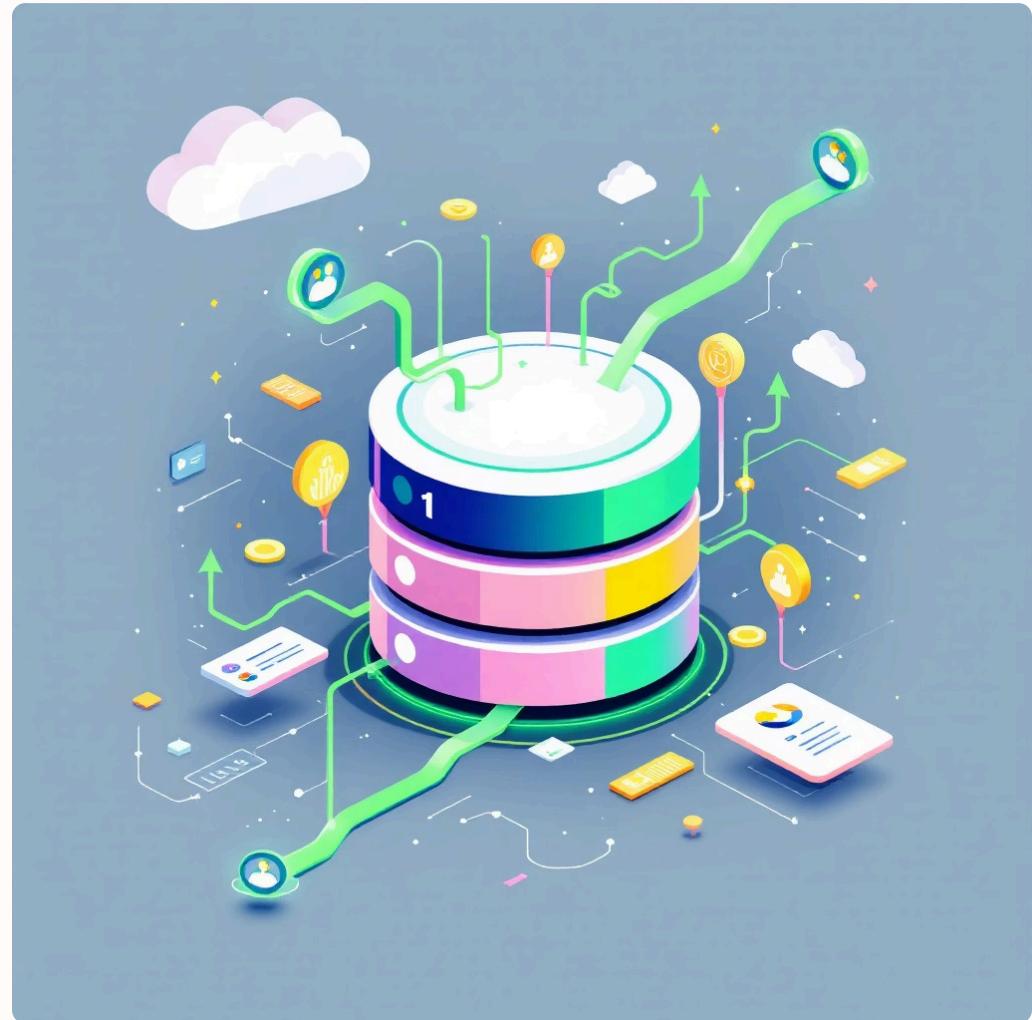
# Dataset at a Glance

## Data Dimensions

- Rows: 3,900
- Columns: 18

## Key Features

- Customer Demographics (Age, Gender, Location, Subscription)
- Purchase Details (Item, Category, Amount, Season, Size, Color)
- Shopping Behavior (Discount, Promo, Previous Purchases, Reviews, Shipping)



## Missing Data

43 values in 'Review Rating' column.

# Exploratory Data Analysis (Python)

01

## Data Preparation

Loading, initial exploration, and missing data handling (median imputation).

02

## Column Standardization

Renamed columns to snake case for readability.

03

## Feature Engineering

Created 'age\_group' and 'purchase\_frequency\_days'.

04

## Data Consistency

Verified and dropped redundant 'promo\_code\_used'.

05

## Database Integration

Loaded cleaned data into PostgreSQL for SQL analysis.



# SQL Data Analysis: Key Business Questions

- 1
- 2
- 3

## Revenue by Gender

Male vs. Female spending.

## High-Spending Discount Users

Customers using discounts but spending above average.

## Top 5 Products by Rating

Highest average review ratings.

# SQL Data Analysis: Shipping & Subscriptions



## Shipping Type Comparison

Examine the average purchase value for standard versus express shipping, revealing customer choices and spending patterns.



## Subscribers vs. Non-subscribers

Assess average spend and total revenue from subscribers compared to non-subscribers, quantifying the value of our subscription models.



# SQL Data Analysis: Product & Customer Focus



## Discount-Dependent Products

Analyze the top 5 products with the highest percentage of discounted purchases, providing insights into their sales performance and customer value perception.



## Customer Segmentation

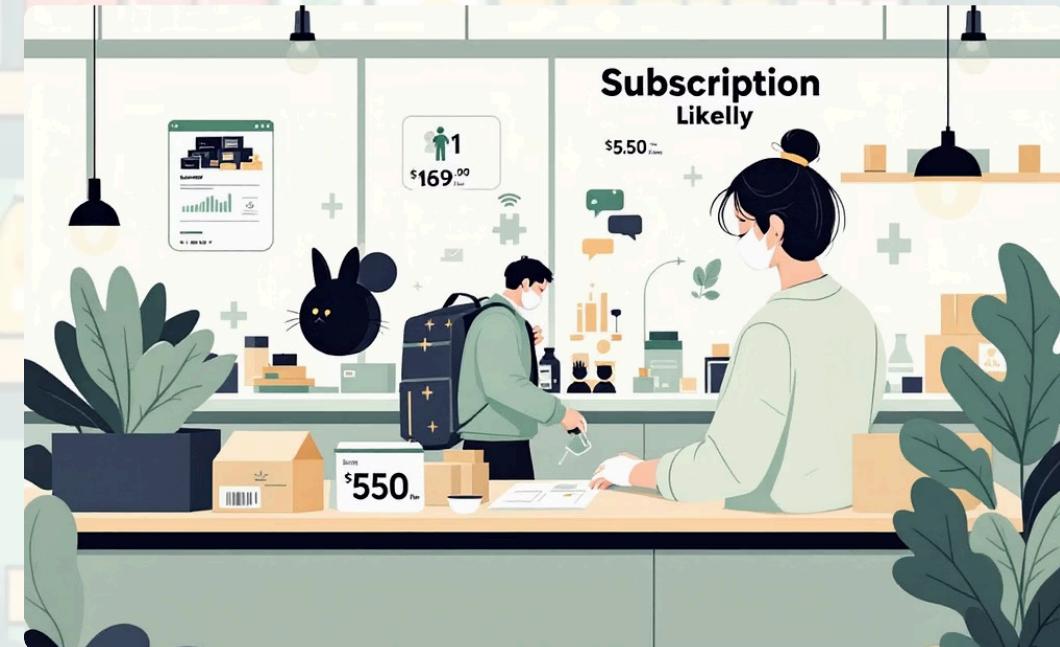
Classify our customer base into New, Returning, and Loyal segments, enabling targeted marketing strategies and personalized customer engagement.

# SQL Data Analysis: Purchase Behavior



## Top Products per Category

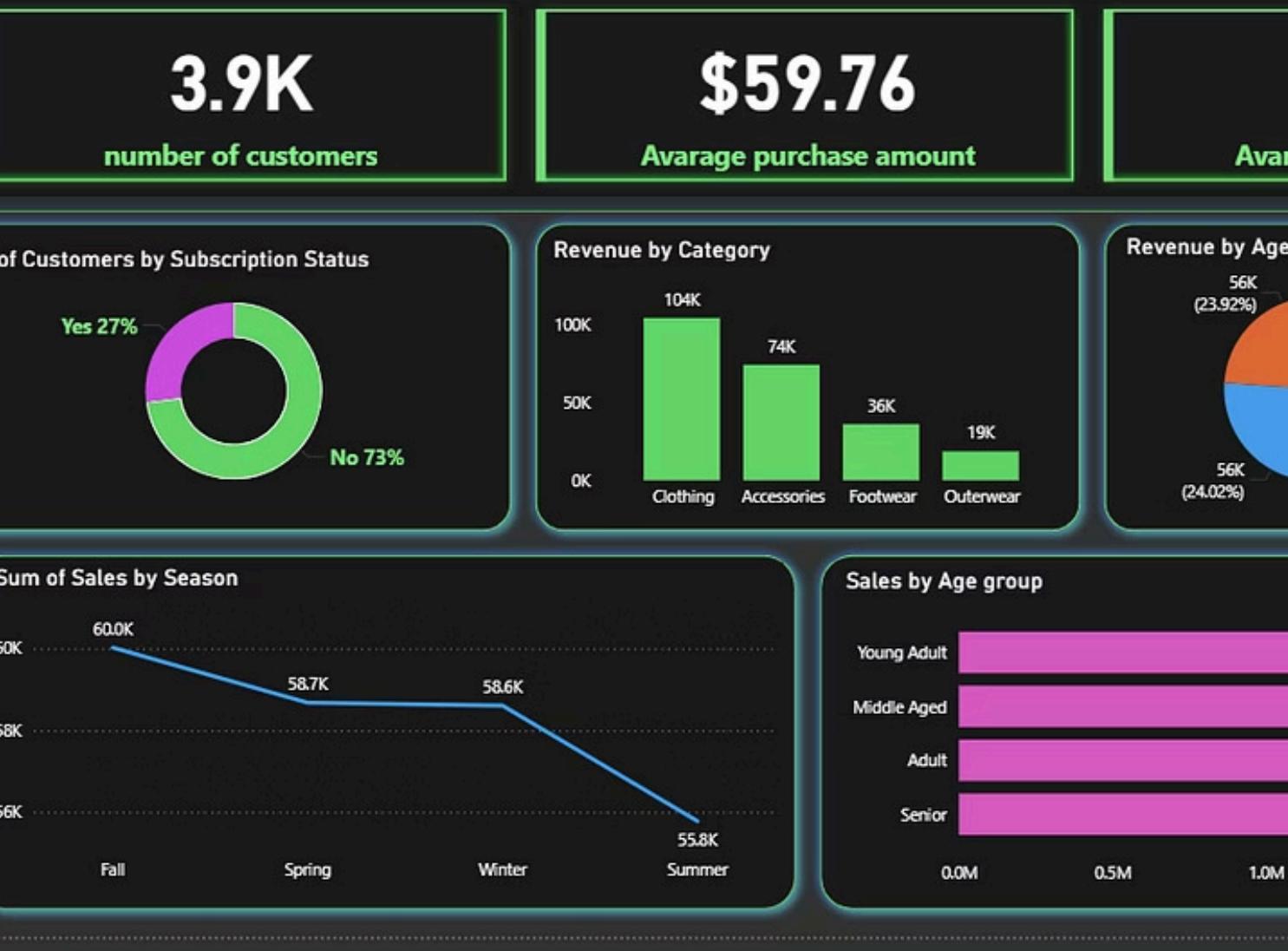
Discover the best-selling items in each product category, identifying key trends and customer preferences.



## Repeat Buyers & Subscriptions

Analyze customers with more than five purchases to determine their potential for converting to a subscription model.

# Customer Behavior & Retail Strategy Optimization Dashboard



## Power BI Dashboard

Interactive visualization of key insights.

This dashboard allows for dynamic exploration of customer data and trends.

# Business Recommendations

## Boost Subscriptions

Promote exclusive benefits.

## Customer Loyalty

Reward repeat buyers.

## Review Discount Policy

Balance sales with margin.

## Product Positioning

Highlight top-rated items.

## Targeted Marketing

Focus on high-revenue age groups & express shipping users.